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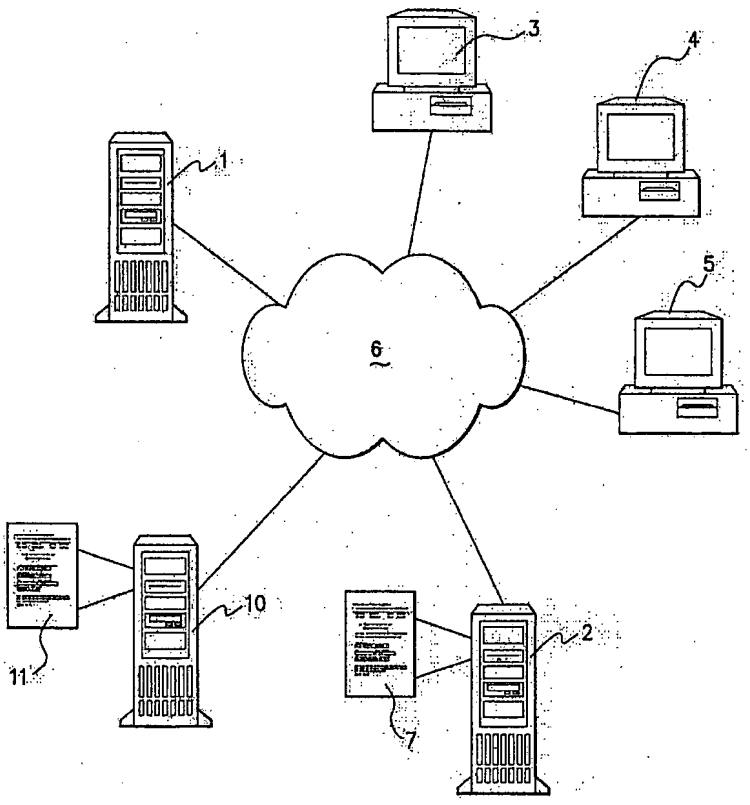
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(54) Title: NETWORK BASED ADVERTISING SYSTEM AND METHOD



(57) Abstract: The present invention relates to a system and method for controlling the presentation of push content by computing system display pages. It is well known to display ads on computer system display pages, such as web pages served over the Internet. One problem with serving ads is that the ads can tend to obscure the content of the web page and therefore irritate the user and lower the impact of the advertising. This can be addressed by custom coding each web page with the advertising material, to avoid obscuring content. This is a laborious process. The present invention provides an ad serving system (1) which defines a frame of reference within which to play push content, such as advertising, and positions the frame of reference with respect to a computer system page, such as a web page, using co-ordinate information. All control of the push content is carried out with respect to the frame of reference. Co-ordinate information can simply be provided to avoid obscuring desirable content in the web page.

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NETWORK BASED ADVERTISING SYSTEM AND METHOD

Field of the Invention

The present invention relates to a system and method for controlling the presentation of content by computing system display pages and, particularly, but not exclusively, to a system and method for controlling the presentation of push content by computer system display pages.

Background of the Invention

It is well known to provide content to computer systems by way of displaying (via computer monitors) one or more "pages" containing the content. In a server/client architecture, such as that employed by the Internet and WorldWide Web, pages of content are served by server computers to user client computers having the appropriate browser software. In this document we will term these pages of content "computing system pages".

Publishers of content, such as the publishers of Internet sites, also allow for the content to include advertising, in order to gain revenue. There is an obvious conflict between the requirement to present content which will attract users to the site and the requirement for the presentation of advertising content in order to attract advertising revenue. Note that advertising content is one form only of "push content".

It is known to present push content in various forms. In one form, the push content is presented as a "pop-up" window that appears over a portion of a computer system page containing content. The problem with this approach is that the pop-up window may appear over any portion of the page and may interfere with the presentation of the standard content which is being presented by the page. This can irritate computer users who wish to view the standard content. This has a deleterious effect on the impact of the push content.

Pop-up windows are usually positioned relative to the computer display. That is, software instructions may be provided to ensure the pop-up window appears either on the right hand side of the display, the left hand side of the display, top, bottom or any other desired position. The positioning of the pop-up window is not determined relative to the computer system page, however, but to the display screen. If the pop-up window

is controlled to appear in a top area of a display screen, it may still interfere with any standard content in the computer system page which appears at the same area, for example.

Alternatively to pop-up push content, push content may be provided in the traditional way by writing it into computer system pages so that it appears as part of the page. The problem with this is that each time push content such as an advertisement is to be presented in a particular computer system page, the computer system page will have to be re-coded.

In order to maintain levels of impact of advertising it has become known to use so-called "rich media" to present advertisements via computing system content pages. Rich media tends to be more animated, use larger software file sizes and can be less predictable to the user, so generally has a higher advertising impact.

One system for delivering so-called "beyond the banner" content is known as DHTML (Dynamic HyperText Markup Language) which alters the appearance of the page. Another method, known as NETBREAK, has been developed by the present applicants. Features of NETBREAK are the subject of the applicant's international patent application no. PCT/AU01/01202, the disclosure of which is incorporated herein by reference.

Rich media may consist in the presentation of graphic elements which can be moved around the page, or an animation being positioned or overlaid on the page.

Because rich media systems such as DHTML alter the computer system page they appear on, push content such as advertisements usually require custom coding in the page on which the ad will be seen. In order to obtain approval for the advertisement, creating of mockup pages for the purposes of demonstrating the advertisement to the advertiser and publisher before it is approved is required.

These requirements can be both time consuming and expensive. They are a barrier for efficient use of the Internet as an effective advertising medium.

There are several issues involved in the placement of the advertising on a website, for example.

Actual area to be positioned/animated within (booking area). This may be say the masthead of the page, or the navigation index down the side of the page.

Areas of the page to be avoided – it is often a policy requirement of sites that some areas not be covered by the push material – this may be the existing banner ad or even the Photo of the journalist who authored the story.

There is also a desire to position and/or animate elements relative to the page – such as placing an advertisement over the story area only.

All of these issues currently involve custom coding of the advertisement to suit the requirements of each page layout that an ad is to be placed upon.

This placement often has trouble allowing for the variations in positioning of elements that occurs when the browser renders the page into the viewer's selected window size thus making the job of simply placing an image reliably quite time consuming.

This situation also results in the sites having quite extensive testing and approval procedures to ensure the ad material they get from the advertiser will perform as required and not breach editorial policy.

This matter is further complicated for the advertiser if they wish to run the same material on many sites as they have to go through laborious testing procedures with each site – and often re-code for each site to adjust for the site's layouts and rules.

Summary of the Invention

In accordance with a first aspect, the present invention provides a system for controlling the presentation of content within a computing system page, the system comprising frame defining means defining a frame of reference within which the content is to be presented, and control means for controlling presentation of the content within the frame of reference, and wherein the control means is arranged to position the frame of reference with respect to the computing system page.

Preferably, the content is push content. Push content is any content that is provided over and above the standard content of a page and which may have a function which does not necessarily correspond to the function provided by the standard content of the

page. Push content includes advertising, but it may be any other content to be presented on the page over and above the standard content. Push content may alternatively be considered as content which has not been specifically requested by the computer user accessing the standard content.

Note also that, in a client/server computing system, push content is usually "pushed" by a server system to a client system. In some cases, however, content may be requested by the client system from the server providing the push content. In this document, this content is still considered to be push content, even though technically it is "pulled" by a request from the client to the server.

Preferably, the computing system page is arranged to display standard content, and the system is arranged to present the push content within the frame of reference on the computing system page so it appears there with the standard content.

Preferably, the control means includes frame positioning means for positioning the frame of reference with respect to computing system page. Preferably, the frame positioning means positions the frame with respect to the computing system page in utilising coordinate information.

The control means is preferably arranged to control the presentation of the content relative to the frame of reference. Preferably, the control means includes commands arranged to control the presentation of the content relative to the frame of reference.

Preferably, the frame defining means defines the frame of reference as an area having a shape, and preferably the control means is arranged to control the presentation of the content by controlling the positioning of the content with reference to the shape, preferably with reference to the boundary of the shape.

Preferably the frame defining means is arranged to define a plurality of frames of reference, and more than one frame of reference may be positioned within a computing system page.

Preferably, the frame defining means is arranged to designate the frame of reference by a label. Where there are a plurality of frames of reference, each one is preferably provided with a different label.

Where there is a label, the control means is preferably arranged to utilise the label to identify the frame of reference, whereby the frame of reference within which content is to be presented can be identified and the appropriate content presented therein.

Preferably, where the frame defining means provides labels, the labels are defined in terms of approximate position within a computer systems page. For example, the label may include "MASTHEAD", and the associated frame of reference would be arranged to be positioned in the masthead area of the computer system page.

In one embodiment, the control means may be provided with the label information and this may be sufficient to enable the frame positioning means to position the frame of reference with respect to the computing system page. The co-ordinate information would be pre-defined or pre-provided for the particular "zone" designated by the label eg MASTHEAD.

Where a graphic boundary (i.e. the boundary of a graphic element) intersects with a boundary of the frame of reference, a clipping means is preferably arranged to "clip" the graphic so that any portion of the graphic which falls over the frame of reference does not appear in the computing system page.

Preferably, where the frame of reference is an area, the area is a rectangle.

Preferably, the control means includes means for defining at least a portion of the frame of reference to be avoided for animation.

Preferably, the frame positioning means is arranged to position the frame of reference within a pre-established area within the computing system page. The pre-established area may be designated as a "booking area" of the page.

In a preferred embodiment, the system of the present invention advantageously enables the presentation of push content to be controlled with respect to the frame of reference, without requiring any knowledge of the computer system page (other than being provided with co-ordinate information or label information, with co-ordinates being pre-defined for the label). Control, such as animation, for example is implemented relative to the frame of reference, which may be, for example, a rectangular area. The frame of reference is then positioned within an appropriate part of the computer system page (according to the provided co-ordinates). The content "plays" relative to the frame

of reference, not relative to the computer system page. The frame of reference can be appropriately positioned within the page to avoid any areas of the standard content of the page that the site owner does not wish the push content to interfere with. Coordinate information identifies coordinates relative to the page in which the frame of reference is to be positioned. Coordinate information may be changed and may vary from page to page, without effecting the presentation of the content with respect to the frame of reference.

In one embodiment, the frame of reference may be defined by "marking off" areas of the computer system page where it is desired the push content not to be displayed. Once these areas are designated, then the push content can play and the rest of the computer system page. Such areas could be considered as "exclusion zones" (because they are designated as not having push content being played in them). The frame of the reference then comprises the area of the computing system page which is not excluded from playing of push content (in which push content may be played). A push content graphic could therefore be programmed to move over a computer system page but be excluded from the exclusion zones ie the push content plays only in the frame of reference which is defined with respect to the exclusion zones.

An advantage of at least the preferred embodiment of the present invention is that because control of content presentation and positioning of the frame within the website is done separately, it is not necessary to separately code each computer system page for presentation of the content. All that is required by the system of the present invention, is the coordinate information. Once these coordinates are provided, the content "plays" as normal relative to the frame of reference. The same content can be presented in many different pages, therefore, the only requirement is that for each page the positioning coordinates for the frame of reference must be provided. Otherwise, the pages remain unaffected.

As discussed above, site operators may designate areas of pages as "booking areas" and provide the coordinates for advertisers. The advertisers can then, on utilising the system of the present invention, place the frame of reference within the booking areas using the supplied coordinates for the booking areas, and present their content within the booking areas. This can be done remotely, without requiring laborious coding for each page and the presentation of a "mockup" page to the site operator, as in the prior art.

In one embodiment, a system interface is provided which enables persons who wish to provide push content (eg advertisers) and persons who wish to earn revenue by having push content displayed on their computer system pages, to interface. The system interface may enable a person providing push content (a 'provider") to determine where a person wishing to earn revenue (an "acceptor") is willing to have push content positioned in their computer system pages. The acceptor may provide to the system interface an example page in which booking areas are marked out and the provider may indicate by way of the system interface that they wish to place push content in any one of the booking areas. The provider may then indicate via the system interface that they wish the push content to be played on the acceptor's site in a particular booking area. The system interface may then interact with a push content server which proceeds to play the push content at the appropriate time (eg an ad server).

In accordance with a second aspect, the present invention provides a method for controlling the presentation of content within a computing system page, the method comprising the steps of defining a frame of reference within which the content is to be presented, and controlling the presentation of the content within the frame of reference, the step of controlling including positioning the frame of reference with respect to the computing system page.

The step of positioning the frame of reference with respect to the computing system page is preferably carried out utilising coordinate information. Co-ordinate information may be provided by an operator of a computing system providing the computing system page, and may be defined as a "booking area" for the placement of push content.

In accordance with a third aspect, the present invention provides a method of facilitating the provision of content within computing system pages, comprising the steps of providing coordinate information defining an area which is being made available on a computer system page for the positioning of content utilising a system in accordance with the first aspect of the present invention.

In accordance with the fourth aspect, the present invention provides a system arranged to facilitate the positioning of content within computer system pages, the system comprising a means arranged to provide coordinate information defining a space within the computer system page for positioning content utilising the system of the first aspect of the present invention.

In accordance with a fifth aspect, the present invention provides a system interface for facilitating the provision of push content on computer system pages, the interface including presentation means for enabling presentation of computer system pages including booking areas for receiving push content, and booking means enabling a push content provider to book a booking area for the provision of push content.

The system interface is preferably arranged to provide co-ordinate information for a system in accordance with the first aspect of the present invention, whereby the control means may position the frame of reference in accordance with the co-ordinates.

In accordance with a sixth aspect, the present invention provides a method for facilitating the provision of push content on computer system pages, comprising the steps of presenting computer system pages including booking areas for receiving push content, and booking a booking area for the provision of push content.

In accordance with a seventh aspect, the present invention provides a computer program providing instructions for controlling a computing system to implement a system in accordance with the first aspect of the present invention.

In accordance with an eighth aspect, the present invention provides a computer readable medium providing a computer program in accordance with the seventh aspect.

In accordance with a ninth aspect, the present invention provides a computer program providing instructions for controlling a computing system to implement a system in accordance with a fourth aspect of the present invention.

In accordance with a tenth aspect, the present invention provides a computer readable medium providing a computer program in accordance with the ninth aspect.

Brief Description of the Drawings

Features and advantages of the present invention will become apparent from the following description of an embodiment thereof, by way of example only, with reference to the accompanying drawings, in which;

Figure 1 is a schematic diagram of an example computing system network via which a system in accordance with an embodiment of the present invention maybe.

implemented;

Figures 2A and 2B are schematic representations of computing system display pages illustrating operation of a system in accordance with an embodiment of the present invention, and

Figure 3 is a further schematic illustration of a computer system display page illustrating further operation of an embodiment of the present invention.

Description of the Third Embodiment

Figure 1 shows a server computing system 1 which is provided with appropriate software for implementation of an embodiment of the present invention. Figure 1 also shows a further server computer 2 which is arranged to provide computer display pages 3 for viewing by user computers 3, 4, 5. Server computer 1, further server computer 2 and user computers 3, 4, 5 are connectable by way of the Internet 6. Yet a further server computer 10 is connected to the Internet 6, and this acts as a system interface computer 10, the operation of which will be described in more detail later.

Further server computer 2 is representative of what may be many server computing systems arranged to provide websites 4 for viewing over the Internet 6 by user computers 3, 4, 5. Similarly, user computers 3, 4, 5 are representative of what may be many user computers which are connectable by the Internet 6 to view the many available websites 7 provided by such further serving computing systems 2.

Further server computing systems 2 provide computer system pages 7 which include standard content which they wish to present on the website. This standard content may be any type of content, such as information, news, promotion for goods being sold by way of the website, and any other type of content which may wish to be presented by the further computing system operator or "website" operator. As well as the standard content, in order to gain revenue the website operator may wish to allow push content, such as advertising, to be presented on the pages 7.

The computing system 1 in this embodiment is arranged in accordance with computer program instructions provided by the software to provide a frame defining means which is arranged to define a frame of reference within which the push content is to be presented. It also provides control means for the presentation of the content within and

with respect to the frame of reference. It also provides coordinate provision means which is arranged to provide coordinates of an area within the page 7 and utilise this coordinate information to position the frame of reference with respect to the webpage 7, whereby the push content may be positioned within the webpage 7.

In order to present the content, the system 1 provides commands which control presentation of the content relative to the frame of reference.

An example will now be given with reference to the schematics of Figures 2a and 2b. Figures 2a and 2b represent computer display pages 7, which include a display area bounded by a boundary line 8. Within the boundary line 8, standard content may be displayed, which may include any content. This embodiment of the present invention also enables presentation of push content without it being necessary to recode the software instructing the system to present the page 7.

Referring to Figure 2a, the frame defining means of this embodiment of the invention in this case defines the frames as "NAV" 9 and "RCOL" 10. Both of these frames of reference are in this case defined as shapes, being in this example rectangles 9 and 10.

In addition to the frame of reference definition, coordinate information provided from the page 7 positions and sizes the frames of reference within the page 7. Coordinate information for NAV shows that the position of the rectangle is defined as left edge 20 in from the boundary 8 and top 150 down from the boundary 8, right edge 120 in from the left boundary 8 and 500 down from the top boundary 8. The co-ordinate information is used by the frame positioning means to therefore define and position the frame of reference within the page 7 as illustrated.

The control means then presents the content with respect to the frame of reference 9.

A website manager can, via the coordinate information, define an area within the page 7 in which push content can be played. Such an area would usually be designed to avoid interference with the standard content that the site manager wishes to be presented.

The control means provides commands for presentation of the content within the frame of reference NAV. One example of a command, which is shown in Figure 2a, would be an animation command for moving , for example, a graphic within the NAV frame of reference.

In the example shown, the control means provides commands for defining a path, in this case "PATH A". PATH A is defined by the commands CENTER, OFF TOP CENTER, and OFF BOTTOM. This means generally that the path runs along the center from the top to the bottom of NAV. It is important to note that the commands control the path of the animation of the graphic (not shown) in relation to the NAV frame of reference, not the page 7.

The frame definition means has therefore defined NAV as a rectangle, and provided it with the label NAV in this case, which indicates to the push content provider that NAV is in the navigation area of the page, so they have an approximate idea of where the push content is likely to be presented if the NAV frame of reference is to be used.

Note that the path 8 commands are only one example of many commands which can be implemented in relation to the frame of reference. The commands may say for example, where content is to be positioned in relation to NAV, where animations are to be driven in relation to NAV, and many more types of commands, some examples of which will be given later on in this specification.

All that the website manager needs to provide, therefore, is the coordinate information to enable NAV to be positioned within the page. Custom coding of the web page to incorporate push content is therefore not required. The push content and commands in relation to the frame of reference can be dealt with totally separately and, in fact, the same commands can be used and played on a different page with different coordinates (and therefore different sizing of the push content area) without any necessity for change, apart from the provision of the different coordinates.

In Figure 2a, the RCOL frame of reference 10 is positioned according to coordinate information 11, 12. Different commands, in this case OFF RIGHT, CENTER TO OFF

LEFT, OFF TOP, are given defining a PATH B which goes diagonally across the RCOL rectangle starting from about the center of the RCOL rectangle on the right and finishing off top left.

Figure 2b shows the same frames of reference NAV and RCOL, with the same commands to form PATH A and PATH B as in Figure 2a. In the case of Figure 2b, however, the coordinates 13, 14 and 15 for NAV and RCOL respectively are different which means that the rectangles appearing in the page 7 have different sizes and different positions. Nevertheless, the commands utilised to implement PATH A and PATH B for the animation are the same commands, and result in the same operation (animation on PATH A and PATH B respectively) relative to NAV and RCOL as in Figure 2a.

In the software which implements the system of this embodiment of the present invention, the coordinate information is defined relative to the current browser window. That is, the frames of reference will be presented in the same relative space on any user computer irrespective of browser. When presenting a computer system page, it will be realised that the position of the content on the page depends on the size of the browser window – some pages centre the content, rather than having it fixed, others actually have different layouts depending on how wide the browser window is (and how high-resolution the computer system monitor is to allow this). The system of this embodiment calculates the positions of the frame of reference relative to the size of the browser window at the time the content is displayed, and can re-calculate the position when the window is re-sized and the elements on the page moved. The positioning of the frames of reference are defined relative to the elements on the computer system page eg boundaries of the page, centre of the page, etc (as discussed above). The actual positioning relative to the current browser window, using those co-ordinates, however, will change depending on the browser window (but will still be the same relative to the page as the co-ordinate information takes account of changes in the browser window as the co-ordinate dimensions are defined relative to the browser window).

In the embodiment illustrated by Figures 2a and 2b, the frames of reference are rectangles. Frames of reference may be any shape that can be defined with respect to coordinates and is not limited to a rectangular shape..

The control means implemented in this embodiment also includes a clipping means which is arranged to "clip" portions of a graphic where a graphic intersects or crosses with a boundary of a frame of reference. An example is illustrated in Figure 3. Figure 3 shows a computer display page 16 with frames of reference NAV and RCOL implemented in accordance with the system of this embodiment of the present invention. A graphic element 17 (which may be any type of graphic object) is illustrated at various positions within NAV and RCOL. The clipping means calculates a "clipping rectangle 18" by intersecting the graphics bounding box 18a with the boundary 19 of the frame of reference NAV or RCOL. By applying this to the graphic element it is possible to make the element not appear outside the chosen placement even when the element overlaps the boundary. This can be implemented in DHTML and other "rich media" implementations. This clipping application can enable the effect of objects "flying" into and out of the defined areas.

The clipping means may also be used to specify if areas are to be avoided for animation, even where they fall within the frame of reference. For example, clipping rectangles could selectively hide the DHTML element if it overlaps the area that the site manager wishes to ensure is not obstructed by DHTML.

The control means may include commands to make use of the frames of reference to effect the animation path of a graphic. For instance to avoid an area by altering the path based on proximity to it, or even to move towards an area with a gravity-like effect.

As substantially all the information relating to control of the presentation of the push content is implemented without reference to the computer display page, i.e. with reference to the frame of reference to be positioned in the display page, this allows for the possibility of website managers specifying various areas of web pages in their site as "booking areas". The coordinates for these booking areas would be provided to advertisers utilising the system of the present invention. The advertisers then merely

provide the code implementing the frame of reference and presenting the content within the frame of reference, and combined with the coordinates the content will then be presented in the area defined by those coordinates as the "booking area". No separate coding of the page or the push content is necessary. This avoids the onerous prior art process of having to create a "mockup" page for the purpose of demonstrating the advertisement to an advertiser and publisher before it is approved to run on the page.

In the present embodiment, a system interface server 10 is provided which facilitates booking by advertisers of booking spaces on website providers' web pages. The system interface server 10 serves web pages 11 which facilitate a push content provider booking "space" for the provision of their push content. A push content provider may access the web pages 11 by way of a computer system such as user computer system 3, 4, 5. Computer system pages 11 served by system interface server 10 may include booking forms for taking details of the provider and the website operator (acceptor) so that processes such as transactions for payment can be carried out. The system interface may also include a facility for presenting example computer system pages of the acceptor with an indication of booking areas available for the playing of push content. A provider then may indicate that they wish to use a particular booking area for play of their push content. Before an acceptor accepts push content, they may request that the push content be played on an example of their computer system page. They may do this by accessing the system interface 10 via a user computer 3, 4, 5. The effect of the push content on the acceptor site therefore can be determined before the push content is accepted.

Once the push content is accepted by an acceptor, the server computer 1 is instructed to play the push content on the acceptor's computer system page at the appropriate time, using the co-ordinates corresponding to the booking area.

In this embodiment, a server 1 may be an ad server for playing Internet advertising.

Note that the system interface 10 need not be provided by a separate server, but could, for example, be provided by the same server as server 1. Note also that booking could be carried out in other ways. For example, an acceptor may provide their own interface

for the booking of push content by providers. The acceptor's own interface may be provided by the same server computer 2 as serves their computer system pages.

In the above embodiment two labels for frames of reference are demonstrated (NAV and RCOL). Any convenient labels may be used. Examples of further labels are as follows:

MASTHEAD

BODY

BANNER (the banner adds space)

ISLAND (the island adds space)

TOWER (the tower adds space)

The co-ordinates may be pre-defined for these labels so that to position the frame of reference, all the system requires is the label information.

This system is executed in JavaScript but some of the animation functions may be implemented in Flash to allow flash animations to be directly aware of the page content. This system could potentially be implemented in any language/environment executed at page display time, this could include such things as VBScript, Java, a plug-in or the environment created by a plug-in – such as the scripting language of Flash.

The following description of examples of implementation of the system of the present invention, and ways in which the system can be implemented, uses the NETBREAK system as an example. The NETBREAK system presents push content in "pop-up" form. The content is first of all built in the background then appears on the page after it has been built. With HTML, tags are inserted into the HTML code associated with the NETBREAK. Note that implementation using NETBREAK is one example implementation only. The system of the present invention may be implemented using many different types of push content providing system.

Testing/Demonstration Interface

In order to demonstrate an advertisement (or any other push content) to a site manager, it is possible to test on existing live pages using the system of the present invention.

Live testing of NETBREAKs in existing live pages via a URL modification. Function within NETBREAK to trigger the ad delivery given the ad number (or URL) and window size.

A form-based interface to allow selection and preview of creative from any web server or local hard drive, with the following variables available"

Site URL

Creative (currently GIF, SWF or NETBREAK HTML content but can also include other graphic, animation and video formats)

Size of the creative

Display type

Position or animation path

Animation type and parameters

Duration

Bounding area

This form creates a URL that will run the proposed advertisement on the live web page for the purposes of demonstration and obtaining creative approval. Without this system, designers of the advertising must mockup a dummy version of the page, insert custom

code into the HTML of the page to create a "concept" for the ad to be approved by the site and advertiser.

Once the designer or site representative is happy with the placement, the form can be submitted to form the basis of the campaign booking, or as part of a workflow for campaign approval, eliminating the need for additional paperwork and ensuring the campaign is booked as specified by the advertiser.

The same system can also be used to demonstrate any advertisement in the NETBREAK database over any site containing the NETBREAK tag, overriding the current bookings in the site's playlist.

This system uses the NETBREAK scheduling engine but with the following unique features:

Bounding boxes specified by us. Built into an array in play.js. NETBREAK searches the page for any extra tags that define bounding boxes.

There are 2 attributes to define the use of bounding boxes:

u	usable area – can be chosen to place material into
a	avoid – animation should not place elements over this area unless it is specified as the intended area

Animations can respond to bounding boxes

Randomisation of responses

Bounding boxes can be set in page code with tags

Live testing of NETBREAKs in existing live pages via a URL modification. Function within NETBREAK to trigger the ad delivery given the ad number (or URL) and window size.

Library to control all animation

Fly

Stickies

In Page NETBREAK

Custom DHTML input

Parameters

On-screen time cap

Persistence timer

Bounding box collision checking

Bounding box collision response

Loop

Backwards and forwards

Ad Types

Window	Original netbreak format in separate window
In Page	As window – but placed into Layer/DIV on the page. As loading has to happen while the page is active the ad will load across multiple pages tagged with the same playlist. The ad appears as an area of the size of the content used.
Takeover	As In Page but the ad covers the whole page.
Overlay	GIF or SWF file placed over the page and positioned by the rect definition and may be moved around as per the path.

Demonstration & setup capabilities

These are activated by adding keywords & parameters onto the search part of the URL

Show Playlist	`nbplaylist`	Display active playlist and associated parameters. Useful for technical staff to check what is currently set up on the site. Also for sales staff to check current status.
Show Area list	`nbrectlist`	Display list of Bounding boxes and associated parameters. Useful for setting up the area parameters. Also useful for sales staff and clients to see what the areas they can use are.
Show Areas	`nbrects`	Overlay transparent rectangle over each area on page.
Show Area	`nbrectsname`	Overlay transparent rectangle over the named area.
'name'		
Grid	`nbgrid`	Overlay grid on page to facilitate analysis of page layout for setup areas. Also could be useful for reference in setting up animation paths.
Show Ad	`nbdemo`	Run an ad by URL or ad number and place/animate according to the mode and other parameters.
Form		Display HTML form(s) to provide User Interface to the other capabilities listed above.

Positioning Algorithms (Commands)

The basis of the ability to position relative to the areas (frames of reference) is based around the following definitions:

These are adjusted according to the size of the object and return the value for the top left corner of the object

Horizontal Values

Pre-defined parameter	**effect**
`left`	Put left edge of object at left of area
`third`	Put center of object one third of the way across the area
`center`	Center object in area
`rightthird`	Put center of object two thirds of the way across the area
`right`	Put bottom edge of object at right of area

Vertical Values

Pre-defined parameter	effect
top	Put top edge of object at top of area
third	Put center of object one third of the way down the area
center	Center object in area
bottomthird	Put center of object two thirds of the way down the area
bottom	Put bottom edge of object at bottom of area

These values are interpreted relative to the current frame of reference by the functions `calcXPos` and `calcYPos`. As the parameter passed to the calc functions is evaluated as a javascript expression any valid javascript expression can be used so function calls and other pre-defined values are also available.

Throughout the code rectangles are defined by four coordinates left, top, right, bottom. These are used in an object defined as having parameters of `.l .t .r .b`.

Exact is a flag to indicate whether the values should be calculated to position precisely to the area boundary or to adjust slightly for cosmetic effect. This effect is used mainly when the function is used to calculate a window placement – so that the window would for instance be positioned near the edge but not exactly on it.

Absolute is a flag to indicate that the current bounding box should not be used – this is necessary when the outer box is being calculated from the window.

```
function calcXPos (xval, width, exact, absolute)  {
calculate outer area width
var RectW = NBRectAbs [0] .r - NBRectAbs [0] .l;
if (exact)  {
oladj = 0;
ladj = 0;
radj = 0;
oradj = 0;
}  else  {
setup cosmetic adjustments
```

```
oladj = 10;
ladj = 10;
radj = 10;
oradj = 10;
}
```

calculate predefined terms as variables

```
var offleft = -width-oladj;
var offright = RectW+oradj;
var rightthird = (RectW/3)*2 - (width/2);
var left = ladj;
var third = (RectW/3) - (width/2);
var center = (RectW - width)/2;
var right = (RectW - width) - radj;
```

evaluate position string

```
xval = eval (xval);
      if (isNaN (xval)) {
            return "";
} else {
if (absolute)  {
      return parseInt (xval);
} else {
```

adjust for bonding area

```
      return parseInt (NBRectAbs [0].l) + parseInt (xval);
      }
 }
}
```

calcYPos is identical in design.

The positioning inside the designated area is accomplished by:

Get outer bounding area. The outer area that all content can operate within could either be considered to the page or the window. In this context it is simpler to consider the

area as the window as the page area currently outside the visible window area is not useful for showing material to the viewer.

The outer bounding area is therefore defined as:

```
NBRectAbs [0].l = 0
NBRectAbs [0].t = 0
NBRectAbs [0].r = window width
NBRectAbs [0].b = window height
```

The desired area is found within the array of areas:

```
if (target)  {
for (var x = 0; x < NBAArea.length ; x++)  {
if (NBAArea [x].id == target)  {
a = x;
}
}
```

The variable a would therefore hold the index to the desired area.

The selected target area's relative coordinates are converted to absolute coordinates relative to the outer bounding box.

```
templ = parseInt (calcXPos (NBAArea [a].rect.l,0,true))
tempt = parseInt (calcYPos (NBAArea [a].rect.t,0,true))
tempr = parseInt (CalcXPos (NBAArea [a].rect.r,0,true))
tempb = parseInt (calcYPos (NBAArea [a].rect.b,0,true))
```

All functions take the rectangle NBRectAbs[0] as the frame of reference therefore these calculated values are reassigned to NBRectAbs[0]. This will have to change to allow for multiple simultaneous animations.

```
NBRectAbs[0].l = templ;
NBRectAbs[0].t = tempt;
NBRectAbs[0].r = tempr;
NBRectAbs[0].b = tempb;
```

These stages are implemented in the function frameSize(target). Where target is the name of the area to position within.

The absolute coordinates for the positioning of the animation are now calculated and placed into a rectangle structure. In this case the l,t coordinates are treated as the starting position and the r,b coordinates as the ending position.

```
pos.l = calcXPos (pos.l, width,false,true);
pos.t = calcYPos (pos.t, height,false,true);
pos.r = calcXPos (pos.r, width,false,true);
pos.b = calcYPos (pos.b, height,false,true);
```

After this the content is loaded and the animation loop is started.

At each iteration of the animation the object is moved by the function `NBPutObject` (element,W,H,X,Y)

Where element is the reference to the object in the page hierarchy. `W` is the width of the object, `H` is the height, `X` and `Y` are the desired coordinates.

Convert `X` & `Y` to Absolute relative to bounding box 0

```
X = parseInt(X) + NBRectAbs[0].l;
Y = parseInt(Y) + NBRectAbs[0].t;
```

Make rect with the desired outer coordinates of the object:

```
box = new NBRect (parseInt(X), parseInt(Y),
parseInt(X)+parseInt(Y), parseInt(Y)+parseInt(H));
```

Make rect with the size of the object:

```
clip = new NBRect(0,0, parseInt(W), parseInt(HH));
```

Calculate clipping region by intersecting the absolute object bounds with the area bounds and adjusting the coordinates of the clip rect to the overlap area adjusted relative to the object corner. Will return null if object completely outside area.

```
clip = NBRIntersect (box,NBRectAbs[0],clip);
```

Check against avoidance areas areas: (does not yet work as Punch function not complete)

```
var i NBRectAbs;
while((i>0) && (clip!= null)) {
if(NBRectAbs[i]) {
box = NBRPunch (box,NBRectAbs[i]);
```

```
}
i -= 1;
}
```

If any of object within area.

```
if(clip != null) {
```

position object

```
element.style.pixelLeft=parseInt(X);
element.style.pixelTop=parseInt(Y);
```

Set object's clip rectangle

```
d.c('NBLayer',clip.l,clip.t,clip.r,clip.b);
} else {
```

otherwise hide object:

```
d.c('NBLayer',0,0,0,0);
}
```

The Intersection function is:

```
function NBRIntersect (bounds1,bounds23,clip) {
      var over_left;
      var over_right;
      var over_top;
      var over_bottom;
      var over_width, over_height;
```

Reject if obviously outside

```
      if ((bounds1.b < bounds2.t)||bounds1.t >
bounds2.b)||(bounds1.r < bounds2.l)||(bounds1.l >
bounds2.r))
  return(null);
```

Calculate Overlap

```
      if (bounds1.b > bounds2.b) {
         over_bottom = bounds2.b;
         } else {
         over_bottom = bounds1.b;
         }
      if (bounds1.t < bounds2.t) {
```

```
            over_top = bounds2.t;
        } else {
            over_top = bounds1.t;
            }
        if (bounds1.r > bounds2.r) {
            over_right = bounds2.r;
        } else {
            over_right = bounds1.r;
            }
        if (bounds.l < bounds2.l) {
            over_left = bounds2.l;
        } else {
            over_left = bounds1.l;
            }
```

(this function down to here is a standard gaming algorithm for collision detection)

Calculate clipping region from overlap

```
        clip.l = over_left - bounds1.l;
        clip.t = over_top - bounds1.t;
        clip.r = over_right - bounds1.l;
        clip.b = over_bottom - bounds1.t;
        return clip;
}
```

The Areas to be used in the page are held in an array like the following:

```
NBAArea[index] = NBRArea (name, type, NBRect(l, t, r, b));
```

Here is an example of the code to declare some array entries:

```
NBAArea[0] = new NBRArea ("page", "u", new NBRect(0, 122,
"right", "bottom"));

NBAArea[1] = new NBRArea ("mastads", "au", new NBRect(190,
25, "right", 102));
```

```
NBAArea[2] = new NBRArea ("domcol", "au", new NBRect
("right-210", 200, "right-10", "Math.min(1550,bottom)"));

NBAArea[3] = new NBRArea ("banner", "au", new NBRect
("Math.max(center-283,112)", 127,
"Math.max(center+184,580)",187));

NBAArea[4] = new NBRArea ("nav", "au", new NBRect(1, 129,
112, "Math.min(640,bottom)"));

NBAArea[5] = new NBRArea ("masthead", "au", new NBRect(0,
23, "right", 121));

NBAArea[6] = new NBRArea ("netmast", "au", new NBRect(0,
0, "right", 22));

NBAArea[7] = new NBRArea ("highlight", "au", new NBRect
("range(right,615m119,985,154,right)",225,"range(right-
40,615,630,952,right)",580));

NBAArea[8] = new NBRArea ("tower", "au", new NBRect
("right-210", 1550, "right-60", 1950));

NBAArea[9] = new NBRArea ("body", "au", new NBRect (120,
200, "right-220", "bottom"));
```

And the playlist entries to sequence materials in these areas:

NBAd (URL, width, height, delay, Xposition, Yposition, mode, End X, End Y, path, time targetrect);

This is a function call that places the playlist entry into the next available array element of the playlist. These arrays are as the original NETBREAK specification but with additional arrays to support the new modes and formats.

This is an example of a playlist for some of the new modes:

```
NBAd("http://netbreak.net/images/flyingcar.gif", 250, 125,
120, "offleft", "bottom", "overlay", "offright", "bottom",
"straight&none", 3, "page");

NBAd ("http://netbreak.net/show/cartmanaudio.swf", 360,
300, 240, "center", "bottom+40", "center", "offbottom",
"straight&none", 3, "body");

NBAd ("http://netbreak.net/images/logosml.gif", 155, 80,
1200, "offleft", "top", "overlay", "right", "center",
"straight&reverse", 3, "body");
```

The first item would put the gif image "flyingcar.gif" which is 250x125 pixels into an area of the page called "page". The image would move from off the left edge at the bottom to off the right edge at the bottom in a straight line and take 3 seconds to travel.

There would be a delay of 120 seconds before the next item.

The second item would place the swf file "cartmanaudio.swf" over the area called "body" and position it at the horizontal center and put the bottom edge 40 pixels below the bottom, then move the file down till it was completely off the bottom of the area again taking 3 seconds.

There would be a delay of 240 seconds before the next item.

The third item would put the gif image "flyingcar.gif" off the left edge of the area and along the top edge of "mastads" and move it across to off the right edge and vertically centered taking 5 seconds.

There would be a delay of 600 seconds before the next item.

The fourth item would place "logosml.gif" off the left edge and at the top of the area "body" and move it across to the right edge and centered vertically then back to the starting position, taking 3 seconds to complete.

These details could also be provided to the URL based demo/testing interface:

http://www.smh.com.au/?nbdemo=http:%2F%netbreak.net%2Fshow%2Flogosml.gif&nbw=155&nbh=80&nbm=overlay&nbx=offleft&nby=top&nbr=right&nbb=center&nbp=straight&reverse&nbt=3&nbi=body

In the above described embodiment, the system of the present invention is implemented in DHTML and javascript software running in an appropriate hardware environment. It is not limited to javascript language. Further, it is not limited to utilising the commands described above in relation to the specific embodiment. Other commands may be designed in other languages to implement the present invention.

The above embodiment of the present invention is implemented over the Internet. The present invention may be implemented on any computing system or network, including any Intranet, Wide Area Network, or stand-alone computing system.

The above described embodiment of the present invention is implemented using appropriate software controlling appropriate server computing systems. Implementation of the present invention is not limited to this architecture. Any appropriate computing system architecture may be utilised. This will include stand-alone computers, network computers, and dedicated computing devices.

Where methods and apparatus of the present invention may be implemented by software applications, or partly implemented by software, then they may take the form of program code stored or available from computer readable media, such as CD-ROMS or any other machine readable media, the program code comprising instructions which,

when loaded onto a machine such as a computer, the machine then becomes an apparatus for carrying out the invention. The computer readable media may include transmission media, such as cabling, fibre optics or any other form of transmission media.

Any content may be presented by way of the present invention. The present invention is not limited to the presentation of "rich media" or advertising.

Modifications and variations as would be apparent to a skilled addressee are deemed to be within the scope of the present invention.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A system for controlling the presentation of content within a computing system page, the system comprising frame defining means defining a frame of reference within which the content is to be presented, and control means for controlling presentation of the content within the frame of reference, and wherein the control means is arranged to position the frame of reference with respect to the computing system page.

2. A computing system in accordance with claim 1, wherein the control means includes frame positioning means arranged to position the frame of reference with respect to the computing system page utilising co-ordinate information.

3. A system in accordance with claim 1 or claim 2, wherein the control means is arranged to control the presentation of the content relative to the frame of reference.

4. A system in accordance with claim 3, wherein the control means includes commands arranged to control the presentation of the content relative to the frame of reference.

5. A system in accordance with any one of the preceding claims, wherein the frame defining means is arranged to define the frame of reference as an area having a shape.

6. A system in accordance with claim 5, wherein the control means is arranged to control the presentation of the content by controlling the positioning of the content with reference to the shape.

7. A system in accordance with claim 6, wherein the control means is arranged to control the position of the content with reference to the boundary of the shape.

8. A system in accordance with any one of the preceding claims, wherein the frame defining means is arranged to define a plurality of frames of reference, more than one frame of reference being positioned within a computing system page.

9. A system in accordance with any one of the preceding claims, wherein the frame defining means is arranged to designate the frame of reference by a label.

10. A system in accordance with claim 9, wherein the labels are defined in terms of approximate position within a computer systems page.

11. A system in accordance with any one of the preceding claims, further comprising a clipping means, and where the content includes a graphic element having a boundary, the clipping means being arranged to clip the graphic boundary so that any portion of the graphic which falls outside the frame of reference does not appear in the computing system page.

12. A system in accordance with any one of the preceding claims, wherein the control means is arranged to position the frame of reference within a pre-established area within the computing system page.

13. A system in accordance with claim 12, wherein the pre-established area is designated as a booking area.

14. A method for controlling the presentation of content within a computing system page, the method comprising the steps of defining a frame of reference within which the content is to be presented, and controlling the presentation of content within the frame of reference, the step of controlling including positioning the frame of reference with respect to the computing system page.

15. A method in accordance with claim 14, wherein the step of positioning the frame of reference within the computing system page utilises coordinate information.

16. A method in accordance with claim 14 of claim 15, wherein the step of controlling the presentation of the content includes the step of controlling the presentation of the content relative to the frame of reference.

17. A method in accordance with claim 14, 15 or 16, wherein the step of defining a frame of reference includes defining the frame of reference as an area having a shape.

18. A method in accordance with claim 17, wherein the step of controlling the presentation of the content includes controlling the positioning of the content with reference to the shape.

19. A method in accordance with claim 18, wherein the step of controlling the position of the content includes controlling the position of the content with reference to the boundary of the shape.

20. A method in accordance with any one of claims 14 to 19, wherein the step of defining a frame of reference includes the step of defining a plurality of frames of reference, and the step of controlling includes positioning more than one frame of reference with respect to the computing system page.

21. A method in accordance with any one of claims 14 to 20, wherein the step of defining the frame of reference includes designating the frame of reference by a label.

22. A method in accordance with claim 21, wherein the label is defined in terms of approximate position within a computer systems page.

23. A method in accordance with any one of claims 14 to 22, wherein the content includes a graphic element having a boundary, and the step of controlling the presentation of the content includes clipping the graphic boundary so that any portion of the graphic which falls outside the frame of reference does not appear in the computing system page.

24. A method in accordance with any one of claims 14 to 23, wherein the step of controlling includes positioning the frame of reference within a pre-established area within the computing system page.

25. A method in accordance with claim 24, wherein the pre-established area is designated as a booking area.

26. A method of facilitating the provision of content within computing system pages, comprising the steps of providing coordinate information defining an area which is being made available on a computer system page for the

positioning of content utilising a system in accordance with any one of claims 1 to 13.

27. A system arranged to facilitate the positioning of content within computing system pages, the system comprising a means arranged to provide coordinate information defining the space within the computer system page for positioning content utilising the system in accorance with any one of claims 1 to 13..

28. A system interface for facilitating the provision of push content on computer system pages, the interface including presentation means for enabling presentation of computer system pages including booking areas for receiving push content, and booking means enabling a push content provider to book a booking area for the provision of push content.

29. A method for facilitating the provision of push content on computer system pages, comprising the steps of presenting computer system pages including booking areas for receiving push content, and booking a booking area for the provision of push content.

30. A computer program providing instructions for controlling a computing system to implement a system in accordance with claims 1 to 13.

31 A computer readable medium providing a computer program in accordance with claim 30.

32. A computer program providing instructions for controlling a computing system to implement a system in accordance with claim 27.

33. A computer readable medium providing a computer program in accordance with claim 32.

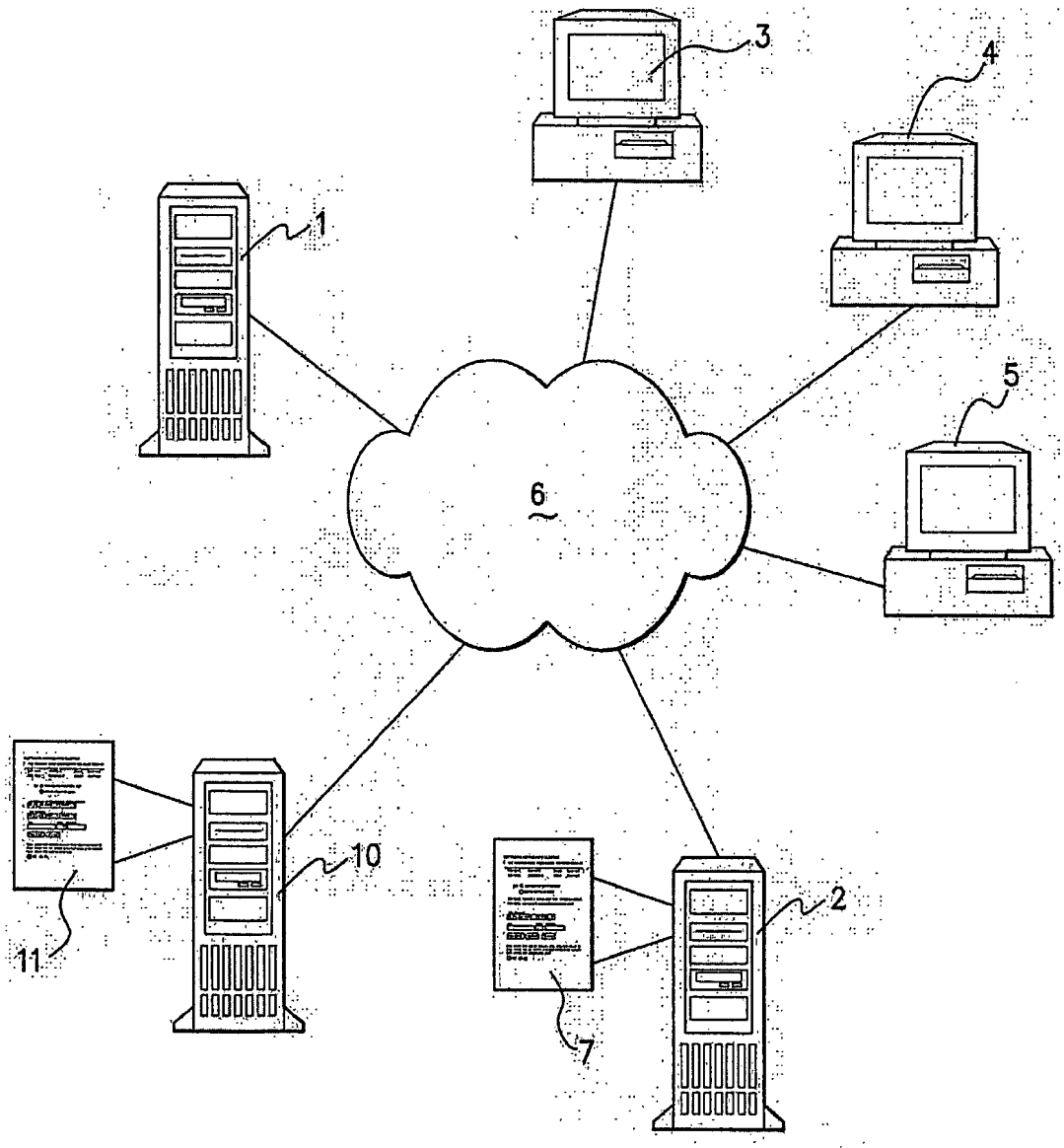


Fig. 1

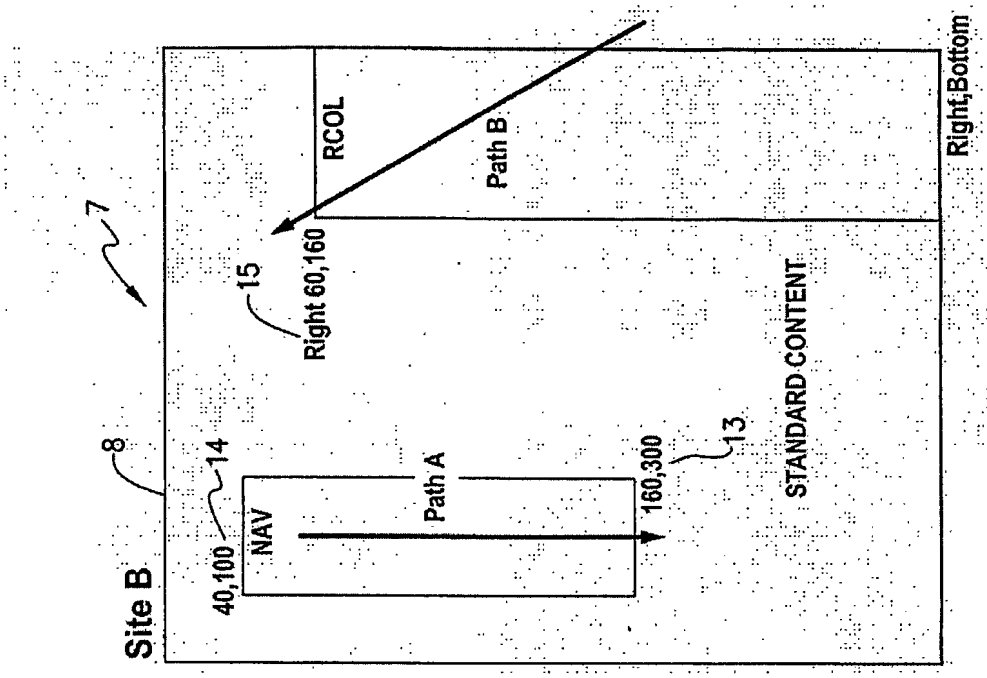

Site B
7
8
14
40,100
NAV
Path A
160,300
13
STANDARD CONTENT
15
Right 60,160
RCOL
Path B
Right,Bottom

Fig. 2(B)

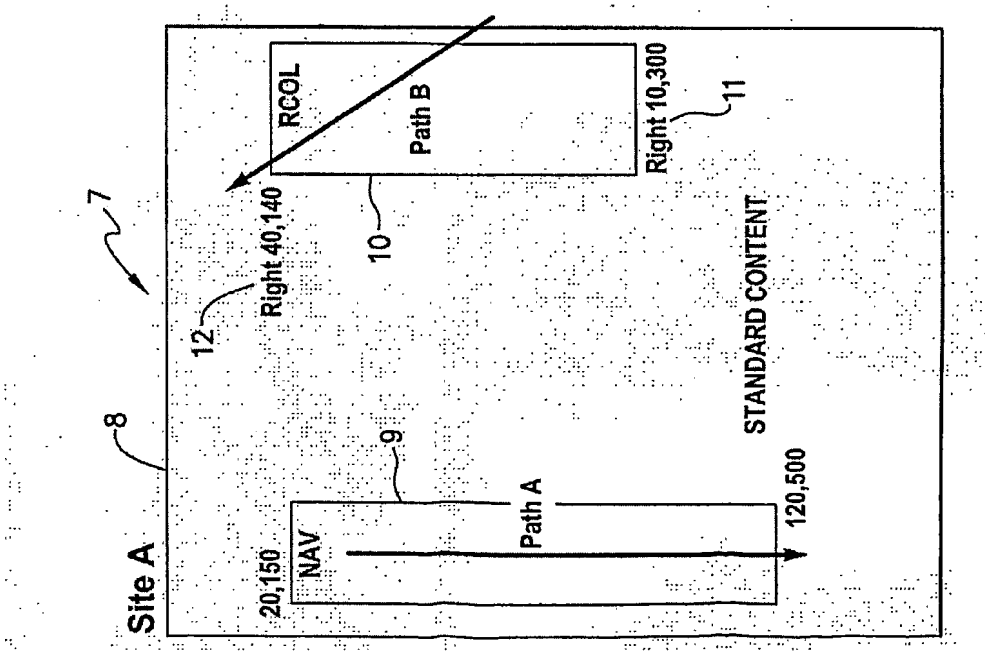

Site A
7
8
9
20,150
NAV
Path A
120,500
STANDARD CONTENT
12
Right 40,140
10
RCOL
Path B
Right 10,300
11

Fig. 2(A)

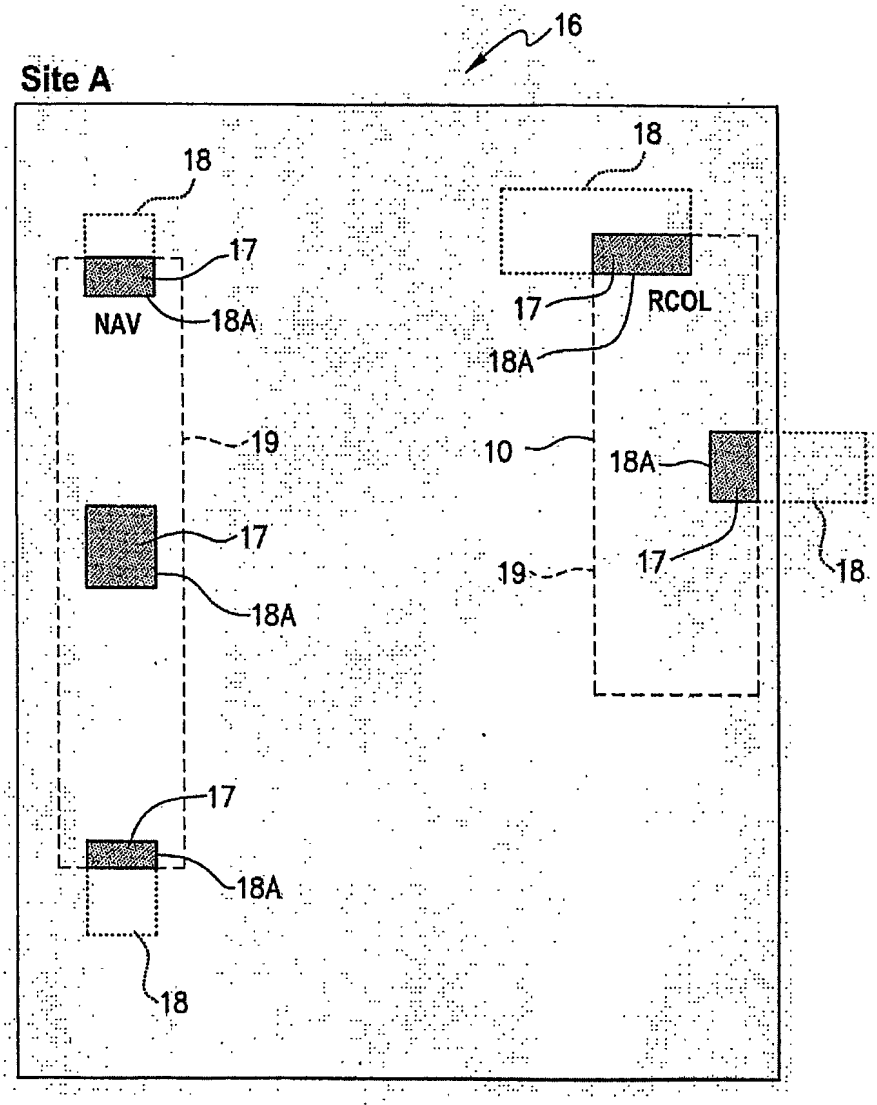

Site A
16
18
17
NAV
18A
19
17
18A
18
17
18A
18
18
17
RCOL
18A
10
18A
19
17
18

Fig. 3

INTERNATIONAL SEARCH REPORT

International application No.
PCT/AU2004/000732

A. CLASSIFICATION OF SUBJECT MATTER

Int. Cl. [7]: G06F 17/60

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

DWPI: (((Network **OR** Internet **OR** Web **OR** Online) **AND** Advertis+) **AND** Frame)

USPTO: **ABST**/Advertis$ **AND** **ABST**/Internet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6401075 B1 (MASON et al.) 4 June 2002 Abstract & Lines 11-65, Column 3	1-33
X	US 2002/0023094 A1 (KOHDA et al.) 21 February 2002 Abstract & Paragraph 11 - Page 2	1-33
P, X	WO 03/050744 A1 (KOLSY) 19 June 2003 Abstract	1-33
A	WO 02/061610 A1 (HAMILTON et al.) 8 August 2002 Lines 19-34, Page 4 & Lines 25-31, Page 5	

☐ Further documents are listed in the continuation of Box C ☒ See patent family annex

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
21 June 2004	05 JUL 2004
Name and mailing address of the ISA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaustralia.gov.au Facsimile No. (02) 6285 3929	Authorized officer **J.W. THOMSON** Telephone No : (02) 6283 2214

Form PCT/ISA/210 (second sheet) (January 2004)

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.
PCT/AU2004/000732

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report		Patent Family Member					
US	6401075	AU	38265/01	US	2002161648	WO	0161562
US	2002023094	JP	2002032590				
WO	03050744	US	2003163372				
WO	02061610						

Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001.

END OF ANNEX